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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,012	01/16/2004	Tomoyuki Kojima	0051-0217P	5749
2292 7590 04/22/2010 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER MCCALISTER, WILLIAM M				
ART UNIT		PAPER NUMBER		
3753				
NOTIFICATION DATE		DELIVERY MODE		
04/22/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/758,012

Applicant(s)

KOJIMA ET AL.

Examiner

WILLIAM MCCALISTER

Art Unit

3753

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on the amendment of 12/22/2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 7 and 9-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 7 and 9-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/06)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/22/2009 has been entered.

Claims 2-6 and 8 have been cancelled. Claims 1, 7 and 9-13 are pending.

Claim Objections

2. Claims 11 and 13 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 1 and 7 (from which claims 11 and 13 depend) have been amended to require the minute sectional suction channel to provide a pressure resistance (see lines 22 of claims 1 and 7), as recited in claims 11 and 13.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 7 and 9-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. Claim 1 (at lines 38-39) and claim 7 (at lines 40-41) require "the minimum and maximum negative pressures [to be] less than atmospheric temperature". It is not understood how a pressure can be less than a temperature.
- b. Claim 1 (lines 18-23) and claim 7 (lines 18-23) recite "each of the minute sectional suction channels ... extends from the corresponding work receiving opening to a point that is only part way across the vacuum suction channel in a width direction of the vacuum suction channel..." This phrase suffers from syntactic ambiguity because it is unclear whether the limitation "in a width direction of the vacuum suction channel" modifies the limitation "extends ... to", or if it modifies the limitation "a point that is only part way across". In other words, what is "in a width direction": the manner in which the minute sectional suction channel extends, or the manner in which a point is part way across the vacuum suction channel?

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1, 7 and 9-13 as understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Garcia (US 5,842,579) in view of Mori (US 5,191,218).

Regarding claim 1, Garcia discloses a vacuum suction system comprising:

- a vacuum leak generation part (device of FIG 6),

- a vacuum generation mechanism (the "low pressure source", see col. 4 line 13)

connected to the vacuum leak generation part,

- wherein the vacuum leak generation part (see FIG 6) includes:

 - a table base (9) disposed on a side of the vacuum generation mechanism,

 - a vacuum suction channel (11),

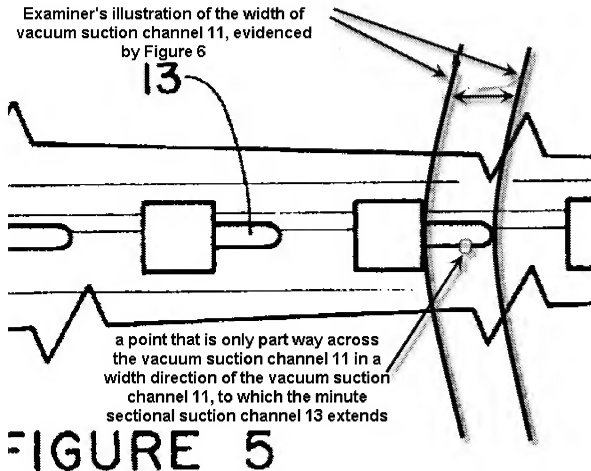
 - a conveyor table (8) rotatably mounted on the table base (member 8 rotates while member 9 is stationary; see col. 3 lines 45-46 and col. 4 line 2), and

 - a plurality of work receiving openings (10) penetrating through the conveyor table (8) (see FIG 6) for receiving works therein (such as members 12), the work receiving openings (10) being spaced apart from each other and arranged in a circular pattern (see FIG 4),

 - each work receiving opening (10) being disposed (radially) outwardly relative to the vacuum suction channel (11),

 - each work receiving opening (10) being connected to the vacuum suction channel (11) through a minute sectional suction channel (13) provided on the conveyor table (8),

each of the minute sectional suction channels (13) has an axis extending in a direction (from left to right, as seen in FIG 5) that is orthogonal to an axis (from top to bottom, as seen in FIG 6) of the corresponding work receiving opening (10), and extends from the corresponding work receiving opening (10) to a point that is only part way across the vacuum suction channel in a width direction of the vacuum suction channel (see annotated FIG 5 below), thereby providing a pressure resistance when the vacuum generation mechanism is operated (all conduits provide pressure resistance because of frictional losses associated with the contact between flowing fluid and the conduit walls).



Garcia does not disclose the vacuum level adjustment mechanism as claimed.

Mori teaches that it was known in the art at the time of invention to employ a vacuum level adjustment mechanism (113a, 114a, 115a-b, 116a, 117, 120; see FIG 6) connected to a similar vacuum leak generation part (106, 111). Mori teaches the vacuum level adjustment mechanism to comprise:

a negative pressure sensor (113a) to detect a vacuum level of similar work receiving openings (106₂) of a similar work table (106),

an adjustment part (115a, 115b) which adjusts the vacuum level of the vacuum leak generation part based on a signal from the negative pressure sensor (col. 9 lines 38-42), and

a compressed gas generation source (116a) for generating compressed gas,

wherein the adjustment part is adapted to jet out the compressed gas from the compressed gas generation source to the vacuum leak generation part based on the signal from the negative pressure sensor (by operation of control valve 115b, see col. 9 lines 30-32 and 38-42), and

wherein the adjustment part (115b) jets out compressed gas based on the signal from the negative pressure sensor when the vacuum level rises above a maximum negative pressure, and stops the compressed gas when the vacuum level falls below a minimum negative pressure,

wherein the minimum and maximum negative pressures are pressures which are less than atmospheric pressure (as understood, Mori's device works in the same way as Applicant's invention),

wherein the minimum negative pressure is closer to atmospheric pressure than the maximum negative pressure, and the maximum negative pressure is a lower absolute pressure than the minimum negative pressure (as is customary for such nomenclature, and as the device has been mapped to the claim above, where pressure in passageway 111 is maintained constant by control of valve 115b based on the pressure sensor reading, see col. 10 lines 23-32).

To more quickly and accurately control the pressure in Garcia's vacuum suction system using proactive feedback control, it would have been obvious to one of ordinary skill in the art at the time of invention to supplement Garcia's vacuum suction system with a vacuum level adjustment mechanism, as taught by Mori.

Note that Garcia's vacuum suction system would have necessarily resulted in the maximum negative pressure being determined by an increased work load rate and the minimum negative pressure being determined by a decreased work load rate (the addition and removal of work pieces inherently raises and lowers the vacuum level present in the system, since this effects the number of openings which are exposed to atmospheric pressure).

Mori does not disclose the compressed gas to be air. However, expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim (see MPEP 2115). It also would have been obvious to decrease the cost of operating the Garcia-Mori system by using air as the compressed gas rather than helium, since Garcia teaches that air is suitable for use in his system (throughout the specification).

The method of claims 7 and 9 would necessarily be performed during the normal and usual operation of Garcia's vacuum suction system as supplemented with Mori's

vacuum adjustment mechanism (the obviousness analysis regarding the use of air is incorporated by reference). (Regarding claim 9, the release of compressed air inherently occurs intermittently, for otherwise there would be no need for Mori's valve 115b.)

Regarding claims 10 and 12, the combinatorial apparatus would maintain the vacuum level of the work openings regardless of the work load rate. This is what Mori's feedback vacuum pressure control adjustment mechanism is designed to do (see col. 10 lines 28-32).

Regarding claims 11 and 13, all conduits provide pressure resistance because of frictional losses associated with contact between the fluid and conduit walls.

Response to Arguments

7. Applicant's arguments filed 12/22/2009 have been fully considered but they are not persuasive.

a. In response to Applicant's arguments against the references individually (Remarks, pp. 13-17), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

- b. Applicant appears to argue that Mori is non-analogous art (Remarks, p. 16). In response, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Garcia, Mori and Applicant all deal in the art of pressure regulation and vacuum chucks.
- c. Applicant's arguments not addressed herein have been considered but are moot in view of the new ground(s) of rejection (i.e., the new mapping of the claim elements). The Examiner's position is believed to be clearly set forth in the rejection above; however Applicant is invited to telephone the Examiner should any further explanation be required.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM MCCALISTER whose telephone number is (571)270-1869. The examiner can normally be reached on Monday through Friday, 9-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WILLIAM MCCALISTER/
Examiner, Art Unit 3753

4/10/2010

/Robin O. Evans/
Supervisory Patent Examiner, Art Unit 3753